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nations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,
BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC,
EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN,
IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
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UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD,
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nations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,
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EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,
JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
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patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG,
ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU,
TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE,
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GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,
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ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: GENES AND POLYPEPTIDES RELATING TO PROSTATE CANCERS

(57) Abstract: The present application provides novel human gene MICAL2-PV whose expression is markedly elevated in prostate cancers. Furthermore, it provides polypeptides encoded by the gene as well as polypeptides encoded by PCOTH which expression was also discovered to be elevated in prostate cancers. The genes and polypeptides encoded by the genes can be used, for example, in the diagnosis of prostate cancers, as target molecules for developing drugs against the disease, and for attenuating cell growth of prostate cancer.

WO 2004/031231 A3

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07K14/47 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C07K C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, Sequence Search, BIOSIS, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99/64631 A (UROCOR INC). 16 December 1999 (1999-12-16)	1,3-9, 13-15, 20,22, 24,26, 28-33
Y	page 7, line 24 - page 13, line 15; claims ----- -/-	1,3-22, 24-26, 28-33

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

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Date of mailing of the international search report

19.04.04

Name and mailing address of the ISA

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Authorized officer

Sommer, B

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LIN S-L ET AL: "A novel mRNA-cDNA interference phenomenon for silencing bcl-2 expression in human LNCaP cells" BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, ACADEMIC PRESS INC. ORLANDO, FL, US, vol. 281, no. 3, 2 March 2001 (2001-03-02), pages 639-644, XP002230694 ISSN: 0006-291X	1,3-9, 20,24, 28-33
Y	abstract	1,3-22, 24-26, 28-33
X	SUZUKI T ET AL: "MICAL, a novel CasL interacting molecule, associates with vimentin" JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 277, no. 17, 26 April 2002 (2002-04-26), pages 14933-14941, XP002266452 ISSN: 0021-9258	1,3-8
Y	the whole document	19
X	TERMAN J R ET AL: "MICALs, a family of conserved flavoprotein oxidoreductases, function in plexin-mediated axonal repulsion" CELL, vol. 109, no. 7, 28 June 2002 (2002-06-28), pages 887-900, XP002266453 ISSN: 0092-8674	1,3-8
Y	results; discussion	19
X	DATABASE EMBL 'Online! 17 November 1998 (1998-11-17), OHARA O ET AL: "Homo sapiens mRNA for KIAA0750 protein" XP002266454 retrieved from EBI Database accession no. AB018293 abstract	1,3-8
X	DATABASE EMBL 'Online! 7 December 2001 (2001-12-07), LILLIE J ET AL: "Human breast cancer expressed polynucleotide 18890" XP002266455 retrieved from EBI Database accession no. AAL26433 abstract	1,3-9, 29-33
	-/--	

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>& WO 01/051628 A (MILLENIUM PREDICTIVE MEDICINE, INC.) 19 July 2001 (2001-07-19) claim 1</p> <p>-----</p> <p>DATABASE EMBL 'Online! 20 September 2002 (2002-09-20), EDWARDS JBDM ET AL: "EST and encoded human protein" XP002266456 retrieved from EBI Database accession no. BD110979 abstract & JP 2002 010789 A (GENSET CORP.) 15 January 2002 (2002-01-15)</p> <p>-----</p>	8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP 03/12074

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
2. ☒ Claims Nos.: 2, 12-14, 20, 22, 24, 26, 28, 29 and 30 (all partially)
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
3-6, 11-18 and 20-32 (partially); 1, 7-10, 19 and 33 (completely)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210.

Continuation of Box I.1

Although claims 11 and 12 are directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Although claims 24-30 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Continuation of Box I.2

Claims Nos.: 2, 12-14, 20, 22, 24, 26, 28, 29 and 30 (all partially), 23 and 27 (completely);

Present claims 2, 12-14, 20, 22, 24, 26, 28, 29 and 30 relate to a compound defined by reference to a desirable characteristic or property, namely to a protein having a biological activity equivalent to a protein consisting of SEQ ID No. 2. However, a protein has various biological activities, e.g. a cell-proliferating activity, an immunogenic activity, a binding activity, etc.

The claims cover all compounds having such a biological activity equivalent, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such compounds. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compound by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, for the purpose of an incomplete search of claims 2, 12-14, 20, 22, 24, 26, 28, 29 and 30, the term "biological activity" has been interpreted as cell-proliferating activity according to the description, page 17, lines 28-34.

Present claims 23 and 27 relate to compounds only defined by the method for their selection. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for none of such compounds. Neither an example of such a compound nor information regarding the nature of such a compound is mentioned in the description. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search of claims 23 and 27 is impossible.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 3-6, 11-18 and 20-32 (partially); 1, 7-10, 19 and 33 (completely)

a polypeptide consisting of the amino acid sequence of SEQ ID No. 4 or 6, respectively, as well as subject-matter related thereto;

2. claims: 3-6, 11-18 and 20-32 (partially); 2 (completely)

a polypeptide consisting of the amino acid sequence of SEQ ID No. 2 as well as subject-matter related thereto;

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP 03/12074

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
WO 9964631	A	16-12-1999	US	6218529 B1		17-04-2001
			AU	4560499 A		30-12-1999
			EP	1086246 A1		28-03-2001
			WO	9964631 A1		16-12-1999
			US	2003050470 A1		13-03-2003
WO 0151628	A	19-07-2001	AU	2934001 A		24-07-2001
			WO	0151628 A2		19-07-2001
JP 2002010789	A	15-01-2002	CA	2311201 A1		05-02-2001
			EP	1104808 A1		06-06-2001
			US	6639063 B1		28-10-2003